

REMARKS

Claims 1, 3-6, 8-9, 11-12, and 14-22 are in this application and are presented for reconsideration. By this amendment, Applicant has amended claims 1, 3-6, 8-9, 11, 12, and 14, and canceled claims 10 and 13 and added new claims 15-22 to improve the clarity and style of this application and to address issues raised in the Office Action. The claims 1, 6, and 14 have been amended to highlight the important differences between the invention and the prior art as a whole. The new claims 15 and 16 present the subject matter similar to the previously canceled claims 2 and 7. The new dependent claims 17-22 present the combination of features provided in the other dependent claims to the independent claim 14.

By this amendment, the Applicant has amended several claims to overcome the Examiner's rejections and respectfully makes assertions for overcoming the rejections of the outstanding Office Action dated September 1, 2004 in the following paragraphs.

SPECIFICATION

The Office Action states that the listing of references in the specification is not a proper Information Disclosure Statement and requests that the references be cited on a Form PTO-1449.

Applicant, in response, provides herewith, Form PTO-1449 with the reference. The reference discloses a process in which sensors can be arranged at a short distance in front of the cutting cylinder. U.S. 5,458,062 is an English language equivalent document. Consideration of this reference is requested.

CLAIM OBJECTIONS

Claims 1, 3-6 and 8-13 have been objected to and the Office Action states that the claim language is vague and lacks proper antecedent basis.

In response, Applicant has reviewed claims 1, 3-6 and 8-13 and revised the claims so that the language is definite and does not lack any proper antecedent basis.

CLAIM REJECTIONS - 35 U.S.C. §102

Claims 1, 3-6, 10-12 and 14 have been rejected under 35 U.S.C. §102(b) as being anticipated by Niedermaier et al. (U.S. 5,123,316, "Niedermaier '316", hereinafter). The rejection is based on the position that Niedermaier '316 discloses each and every feature arranged as specified in the claims. Applicant notes that the references fails to teach each feature as specified in the claims and arranged as specified in the claims.

Niedermaier '316 discloses a method and an apparatus for reducing paper waste in a web-fed printing machine. According to the apparatus disclosed in the Niedermaier '316 reference, a couple of conventional cutting mark reading heads 59, 60 are placed adjacent to a strand to be bound 16, 17, before a strip-cutting register device 18.

The cutting-mark reading head 59, 60 reads cutting-marks on its respective strand to be bound 16, 17 (column 5, lines 48 to 54 in Niedermaier '316). The value recorded by the cutting-mark reading head is used in a generally conventional electronic controlling and adjusting device 62 which forms a signal for the single or multiple electrical motors 53 of the strip-cutting register device 18 in accordance with the strip-cutting register deviation (column

5, lines 64 to column 6 in the Niedermaier '316).

The printing machine according to the Niedermaier '316 reference also discloses cutting-mark reading heads 64.1 to 64.8 positioned adjacent to the individual web strands. The values recorded by the cutting-mark reading heads are used in a paper web controlling and adjusting device 65 which forms adjusting signals for web cutting register devices 13.1 to 13.8 (Figure 1: column 6, lines 21 to 27 in the Niedermaier '316 reference).

Therefore, the Niedermaier '316 reference discloses at least two main areas where cutting-mark reading heads are placed for controlling their own portion of the respective strand. In other words, the cutting-mark reading heads 59 and 60 control the electromotors 53. The cutting mark reading heads 64.1 to 64.8 control the web cutting register devices 13.1 to 13.8. However, neither of the two mentioned cutting-mark reading head portions interact with each other to provide any control signal for their respective portions. In essence, they are not coupled to each other.

The present invention as claimed in claim 1 comprises of the steps of forming an adjusting signal for the strand to be bound in a common control device where the common measured value recorded from the strand to be bound is used. The adjusting signal formed by the common control device and the individual strand measured values recorded from the individual web strands are used in individual control devices to form the individual adjusting signals for the web strands. In contrast to the prior art according to the Niedermaier '316 reference, an adjusting signal for the strand to be bound is used to form an individual adjusting signal for a web strand. In essence, Niedermaier '316 reference discloses two adjusting and

controlling devices working separately, without being coupled.

The device according to claim 6 of the present invention comprises an individual control device which forms individual adjusting signals for the web strands wherein the adjusting signal for the strand to be bound formed by a common control device and the individual strand measured values are used for the cutting positions of the web strands.

In contrast, Niedermaier '316 reference fails to disclose or suggest this feature.

The device according to claim 14 is used for bringing together web strands into a strand to be stitched. The device comprises a common control device forming an adjusting signal, and an individual control device forming an adjusting signal individually for a web strand using the adjusting signal from the common control device and the individually measured signals from the web strand.

The Niedermaier '316 reference fails to disclose or suggest these features. Applicant further notes that the Niedermaier '316 reference does not provide any suggestion or motivation which would lead a person of ordinary skill in the art to believe that providing certain type of coupling between the two strip-cutting registers located at different parts of the apparatus would provide any improvement. Instead, the Niedermaier '316 reference leads a person of ordinary skill in the art to two separate and different structures of marking and controlling function that is completely different from the present invention as claimed. Therefore, it is Applicant's position that the Niedermaier '316 reference neither anticipates nor suggest the present invention as claimed.

CLAIM REJECTIONS - 35 U.S.C. §103

Claims 8 and 9 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Niedermaier '316 reference in view of Bergland et al. (U.S. 5,016,182, "Berland '182", hereinafter).

The rejection states that the Niedermaier '316 reference fails to disclose optical scanner which detects optical print marks and relies on the Bergland '182 reference to show that a register control means having an optical scanner is disclosed.

Bergland '182 discloses a register control for web processing apparatus which applies impressions and associated register mark to a web and effects registration between the impressions and the cutting zone by including a base speed selector means and circuits for operating the register control motor to establish and maintain a base speed for the web.

It is Applicant's position that the claims 8 and 9 are not obvious in view of the Niedermaier '316 reference in view of the Bergland '182 reference. The present invention as claimed provides for a combination of features not taught by the prior art as a whole including the Niedermaier '316 reference nor the Bergland '182 reference. For instance, there are several differences for the present invention as claimed.

As stated above, the present invention as claimed provides for a combination of features where the one sensor for the strand to be bound and the web strand sensor for individual recording individual strand interact with each other so that a common control device provides an adjusting signal to the individual control devices. In essence, such interactive and feedback-related control structure called "cascade control" in control engineering is used in

combination with the optical print marks. Such combination of features are not taught by the prior art and provides for several improved effect for the present invention as claimed. For instance, the present invention as claimed has the advantage of providing a much simplified machinery with overall maintenance costs being minimized as a result. Furthermore, such control system allows the device to provide a real time feedback rely which improves upon the state of the art technology.

The above two advantages each are due to the combination of features as claimed. The advantages cannot be obtained from the prior art and the invention solves the problem of complex structures which do not meet the present problem of providing an exact and correct cutting method. The prior art as a whole does not recognize these problems and direct the skilled artisan in a different direction, inexplicitly to provide separate sensors and controls for each specific portion of the machinery.

There must also be some suggestion or teaching in the prior art as a whole which would lead the person of ordinary skill in the art to provide the combination as claimed. As the prior art as a whole fails to direct a person of ordinary skill in the art toward the claimed combination, the invention should be considered not anticipated, non-obvious and thus patentable.

Applicant would also like to reiterate that the present invention as claimed also reads over the Koch et al. reference (U.S. 6,092,466, "Koch '466", hereinafter) which was cited in an Office Action dated January 28, 2004.

Koch '466 reference discloses a method for self-adjusting color and cutting register

control in rotary printing machines. The printing machine comprises a measuring sensor 12 which records the relative position of each printed color for each web strand (Figure 3: column 3, lines 52 to 56 in Koch '466). The machine further comprises a measuring sensor 13 which records a cutting position of the strand to be bound (Figure 3: column 3, lines 59 to 65 in Koch '466). A regulating device R with D_1 determines the rotational speed and position of the printing unit 4. This controller R with D_1 forms a signal for the printing units using the common variable W with Y , a correcting variable K with Y_S , a correcting variable K with Y_{F1} , the common measured value X with S for the web strands to be bound and the individual value X with F_1 . The values used by the controller R with D_1 are summed.

In contrast to the device as disclosed according to Koch '466 reference, the process according to claim 1 of the present invention forms an adjusting signal for the strand to be bound in a common control device using the common measured value. The adjusting signal formed by the common control device is used by individual control devices for forming the individual adjusting signals. This structure is called "cascade control" in control engineering. Using a cascade control for example allows the individual control device a rapid control as compared to the common control device, so as to not produce an unstable system when the individual control device is unable to follow the dynamics of the input values. Therefore, it is possible to guarantee that at any point in time, all the web strands at the points where the individual values for the web strands are measured have the same cutting position among one another. Koch '466 reference does not disclose or suggest this important feature.

The device according to claim 6 of the present invention comprises a common control

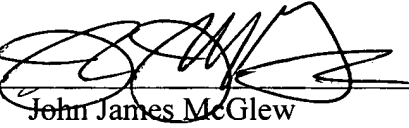
device and an individual control device where the individual control device form an individual adjusting signals for the web strands using the adjusting signal formed by the common control device. Koch '466 reference fails to disclose or suggest this feature as well.

As the prior art fails to suggest the combination of features as claimed, Applicant respectfully requests that the Examiner favorably consider the claims as now presented in view of the discussion above.

It is Applicant's position that all claims are now allowable. Should the Examiner determine that issues remain that have not been resolved by this response, the Examiner is requested to contact Applicant's representative at the number listed below.

Favorable action is requested.

Respectfully submitted
for Applicant,

By: 
John James McGlew
Registration No. 31,903
McGLEW AND TUTTLE, P.C.

JJM/DWK:jms
67736RCE.4

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SCARBOROUGH STATION
SCARBOROUGH, NEW YORK 10510-0827
(914) 941-5600

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McGLEW AND TUTTLE, P.C.

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